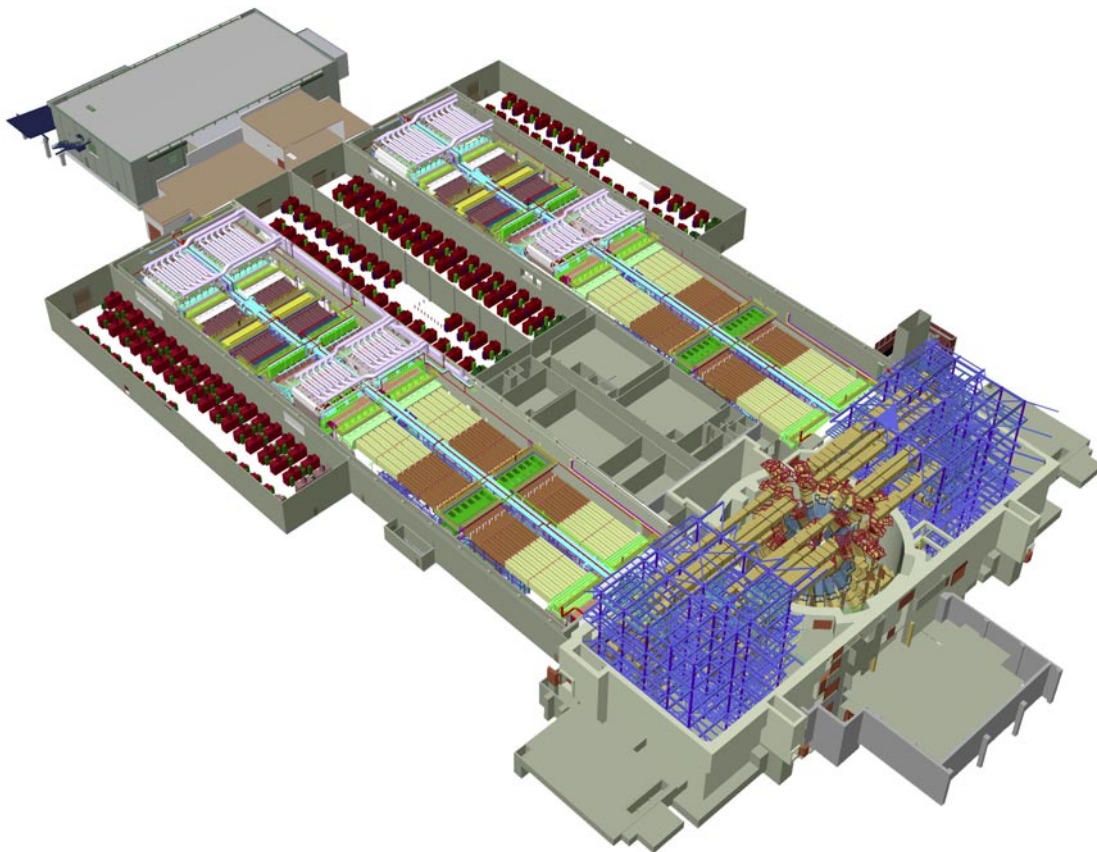




# **National Ignition Facility Management Descriptions Revision 7**



**October 2001**

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## **National Ignition Facility Management Descriptions**

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**October 2001**

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# **National Ignition Facility Management Descriptions**

## **Revision 7**

### **Purpose**

The purpose of this document is to describe the National Ignition Facility (NIF) Project Organization and the top level roles and responsibilities of the managers charged with executing the Project.

### **The NIF Project Organization**

The NIF Project Organization is shown in Figure 1. This organization reflects the NIF business model, which is similar to that found in aerospace and other high technology organizations. In this model, the Project Office may be viewed as the funding agency, having overall responsibility for delivering a NIF that meets the approved project technical cost and schedule baseline. The baseline includes applicable federal (Department of Energy [DOE]), state, regional and Lawrence Livermore National Laboratory (LLNL) regulations and requirements. The NIF systems, subsystems, and components are supplied by the NIF Associate Project Managers (APMs) for Products. In this respect, these APMs function as project contractors who have “cradle to grave” responsibility for their products. Many NIF systems consist of products supplied by multiple APMs. Integrated Product Teams (IPTs) have been established to provide an integrating contractor function for these situations. As the NIF is assembled to higher levels of integration encompassing the responsibilities of multiple IPTs, Area Integration Managers (AIMs) serve as general integrating contractors. Systems Engineering is the project organization responsible for the ultimate integration of the NIF, from requirements through commissioning.

As the NIF systems are activated, the Commissioning function is responsible to assure the Operations Manager through appropriate testing and review that systems meet their functional, operational, and safety requirements.

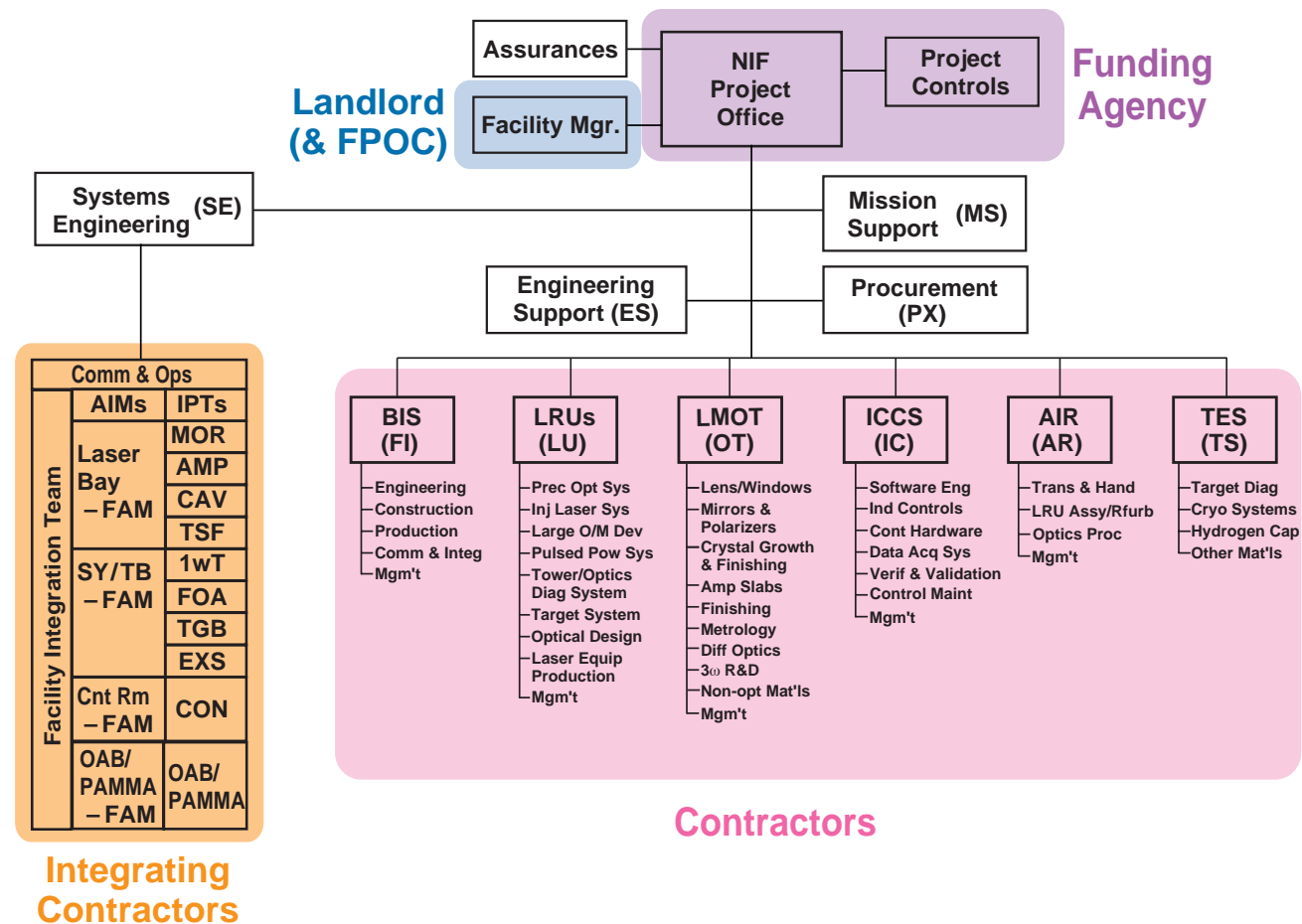
During installation, assembly, and test work, a Facility Integration Team provides integrated planning and management oversight of work in the NIF Facility. AIMs or Field Area Managers reporting to the appropriate AIM, are responsible for oversight and coordination of day-to-day work within the NIF Facility. A Site Manager provides global facility oversight and serves as primary Facility Point of Contact (FPOC).

Other NIF organizational elements provide management of the processes utilized to execute the Project. These include Mission Support, Engineering Services, Controls Engineering, Laser Equipment Production, and Commissioning and Operations. The Associate Project Managers for these organizations are charged with promulgation of requirements, work processes, and procedures; provision of engineering, production, and refurbishment services; and integrated planning for commissioning and operation.

The NIF Project Manager is assisted by Deputy Project Managers, who have been assigned specific oversight responsibilities as delineated in this document. In addition, Assistant Project Managers provide project control, coordination, and special project support to the Project Manager and his deputies.

A project office staff provides administration, financial management, and assurances functions. Within LLNL, the NIF Project resides in the NIF Directorate. The NIF Programs Directorate Office provides personnel management, facilities support, public relations, and umbrella environmental safety and assurances support.

# Explanation of the “NIF Business” Model — and how it relates to working on the NIF Site



## Roles and Responsibilities

### Project Manager

The Project Manager reports to the Associate Director of NIF Programs and is responsible to:

- Execute the Project and direct the participating laboratories and industrial contractors such as architect engineers, construction managers/general contractors, equipment vendors, and other industrial firms.
- Oversee all research and development programs required to successfully complete the NIF Project.
- Establish, maintain and control the NIF baseline (technical, cost, and schedule) in accordance with the Project Execution Plan, and report status to the NNSA in a timely manner.
- Interface with the NNSA Director, Office of the NIF Project, and the Deputy Director/NIF Field Manager.
- Supported by the Assurance Office, ensure that the NIF Project meets all applicable Department of Energy (DOE), Federal, State, and Regional ES&H, Quality Assurance, and security requirements.
- Assure that NIF Project work is conducted under the principles and requirements of the LLNL Integrated Safety Management (ISM) system and NIF Project Control Procedure 1.11 and assure that adequate funding is available to administer and execute this safety program.
- Serve as the Authorizing Individual (AI) for the NIF site. The Project Manager may delegate the responsibility and authority of the AI to lower-tier NIF Project managers as appropriate, and shall assure that these individuals are knowledgeable of their ISM duties and responsibilities.
- Assure that all Project members are trained and qualified to perform their assigned tasks and ensure that all required ISM-related training is provided.

### Deputy Project Managers

Four Deputy Project Managers have been established to assist the Project Manager in the execution of his duties. They may be delegated the authority to act for him in his absence. They serve as a management team and are involved in all aspects of the management of the Project, but have also been delegated specific oversight responsibilities.

The **Principal Deputy Project Manager** supports the Project Manager in the execution of the NIF Project in accordance with the Project Execution Plan. The Principal Deputy acts for the Project Manager in his absence. In addition, he/she is responsible for planning and assessing the project personnel requirements and working with LLNL matrix organizations and contractual organizations to provide necessary staff for the project. Other responsibilities include the following:

- Coordinating the development of policies for the NIF Project.
- Facilitating DOE oversight activities within the project.
- Serving as the project point of contact for both internal and external reviews.
- Managing the relationships with major subcontractors.
- Managing the interfaces to other LLNL and University of California (UC) organizations.
- Serving as the project point of contact for public relations.
- Serving as a member of the Level 3 Change Control Board.

The **Deputy Project Manager—Chief Technical Officer** is responsible for technical quality assurance and will:

- Manage the Systems Engineering organization, including the activities of the senior project scientific staff.
- Oversee technical integration activities of the project, including establishment and flowdown of requirements, interfaces, configuration management, commissioning and operations planning, performance, and risk mitigation.
- Establish and conduct a risk identification, evaluation, and mitigation program.
- Co-chair the Level 4 Change Control Board.
- Serve as a member of the Level 3 Change Control Board.

The **Deputy Project Manager—Chief Operations Officer** is responsible for oversight of the product line organizations and cost and schedule and will:

- Oversee/coordinate the project execution activities of the Associate Project Managers.
- Oversee the financial management and project controls activities.
- Conduct status reviews and oversee external reporting.
- Interface with the LLNL Institution and DOE/NNSA on all Project control and financial matters.
- Co-chair the Level 4 Baseline Change Control Board
- Serve as a member of the Level 3 Change Control Board.

The **Deputy Project Manager—Assurances** is responsible for oversight of all Project assurance activities and will:

- Oversee/coordinate the Quality Assurance (QA), ES&H, and ISM activities in the Project.
- Develop and implement procedure policies for project assurances.
- Lead the preparation of National Environmental Policy Act (NEPA) documents working with the DOE/NNSA (e.g., Supplemental Environmental Impact Statement and Supplemental Analyses).
- Serve as the interface with the DOE in their compliance audits.
- Interface with the Department of Justice, DOE General Consul, and LLNL Consul on all NIF-related litigation.
- Work with the Deputy Project Manager/Chief Operating Officer and the Associate Project Managers to prepare the Project status report.
- Serve as a member of the Level 3 Change Control Board.

### **Assistant Project Managers**

Assistant Project Managers have been assigned to provide assistance to the Project Manager and Deputy Project Managers as part of the senior management team. Their responsibilities include planning and coordinating Project Office activities, assisting the Project Manager and Deputy Project Managers in the execution of their duties, acting on behalf of Deputy Project Managers as delegated in their absence, and managing special projects as assigned.

The **Assistant Project Manager for Project Controls** reports to the NIF Project Manager through the Deputy Project Manager—Chief Operations Officer and is responsible to:

- Manage and coordinate the development and implementation of project planning, control, and cost and schedule configuration management processes, including milestones and technical performance goals and other indicators that are identified to accurately measure performance against the baseline.
- Manage the monthly status review and external reporting process.
- Maintain the budget and schedule databases.
- Coordinate and integrate the cost and schedule baselines and the related core documents, including Baseline Change Proposals, Project Data Sheets, Control Account Plans, Project Execution Plan, and the project Master Schedule.
- Serve as the primary Project contact for formal reporting of Project activities to DOE/NNSA-HQ, DOE-OAK, and other sponsors as appropriate.

### **Systems Engineering Manager**

The Systems Engineering Manager reports to the Project Manager and is responsible to:

- Oversee the technical integration activities of the project including risk management, system performance, area integration and interface control, and commissioning and operations planning.
- Ensure that the Project will fulfill the Primary Criteria/Functional Requirements (PC/FR) including consistent flowdown of requirements to the System Design Requirements (SDR) and Subsystem Design Requirements (SSDR) and the Interface Control Documents (ICDs) working through the Area Integration Managers.



- Form and maintain working groups (e.g., cleanliness, back reflection) to resolve and monitor disposition of key issues and oversee the Material Review Board (MRB) process.
- Provide integration direction and coordination through the AIMs and the Integrated Product Teams (IPTs).
- Ensure that System Engineering members are trained and qualified to perform their assigned tasks and that the Commissioning Manager, Operations Manager, AIMs, and IPT Leaders are trained and qualified for their role as delegated AIs.

### **Operations Manager**

The Operations manager, in conjunction with the Commissioning Manager, provides the integration, transition and verification management from commissioning tests to an operating NIF. The Operations Manager is focused on assuring that commissioned systems meet their performance and operational requirements or that there is an approved plan to meet those requirements. The Operations Manager reports to the Systems Engineering Manager and is responsible to:

- Ensure that Commissioning and Shot Operations procedures are prepared and used.
- Serve as the AI for Integration Work Sheets (IWSs), Operational Safety Procedures (OSPs), and other safety documents associated with NIF operations in B581 when designated to do so by the Project Manager.
- Be a voting member of the Level 4 Change Control Board, reviewing all change requests with respect to effects on commissioning and long-term operations.
- With the ES&H Assurance Manager, co-chair the Safety & Performance Review Board process (including the MPR).
- With the QA Manager, ensure that QA/QC requirements are defined and met in all operations activities. This includes the implementation of 10CFR830 Subpart A.
- Assure that all operations workers are trained and qualified for their responsibilities.
- With the Quality Assurance Manager, develop a quality training and orientation program for Project personnel.
- Assure that the Authorization Basis and required environmental permits for the B581/681 complex are in place.

### **Commissioning Manager**

The Commissioning Manager in conjunction with the Operations Manager provides the integration, transition, and verification management from subsystem acceptance tests to a fully commissioned NIF. The Commissioning Manager is focused on verifying that NIF systems meet their functional and operational requirements or that a plan is prepared and approved for the receiving organization to meet these requirements. The Commissioning Manager reports to the Systems Engineering Manager and is responsible to:

- Prepare and execute the NIF Commissioning Plan, the master plan for commissioning and transitioning to operations of B581/681. The plan shall, at a minimum, include roles and responsibilities, transfer of responsibility through the Safety and Performance Review Board (S&PRB) process, and commissioning steps and schedules.
- Coordinate the activities of the AIMs, IPTs, and APMs in the performance of the commissioning tests such as the integrated laser tests.
- Serve as the AI for IWSs, OSPs, and other safety documents associated with commissioning in B581 when designated to do so by the Project Manager.
- With the QA Manager, ensure that QA/QC requirements are defined and met in all commissioning activities. This includes the implementation of 10CFR830 Subpart A.

### **Area Integration Managers**

Area Integration Teams (AITs) have been established for the laser bay, switchyard/target bay, control rooms, plant and process utilities, and assembly/refurbishment areas to lead the integration of all planning and execution activities necessary to deliver a commissioned and fully dispositioned system to NIF operations. Additional AITs may be established as necessary. Each AIT is lead by an Area Integration Manager (AIM). The AITs include applicable Integrated Product Team Leaders and other designated individuals who may be required to deliver an

area's commissioned systems. The AIMs report to the Project Manager through the Systems Engineering Manager and are responsible to:

- Ensure that a well coordinated, unified plan is developed and executed to deliver their areas systems. This includes CAPs, NPS/IPS plans, and work interface agreements. In this regard, the AIM is responsible to ensure that the plan, including detailed IPT sub-plans, represents balanced technical, cost, schedule and organizational risks.
- Ensure that the plans for all individual areas integrate into a seamless whole.
- Ensure the integrity of requirement flowdown from Primary Criteria/Functional Requirements to Subsystem Requirements and Interface Control Documents to design, procurement, and commissioning documentation for the systems in their respective areas. This responsibility includes intra-area interface control documentation.
- Appoint Field Area Managers (FAMs) as and when appropriate to coordinate day-to-day work in their areas.
- Review and concur with all Control Account Plans (CAPs) in his/her respective area before final submission and consideration for approval by the Project Office.
- Be a voting member of CCB4 and serve on design, procurement and other relevant review teams.
- Ensure that quality is maintained within critical systems by reviewing and approving the Quality Level determinations and tracking the verification and validation of the Level 1 and 2 items.
- Serve as the AI when so designated by the NIF Project Manager in accordance with the NIF Project Implementation of ISM in B581. The NIF Project Manager may authorize the AIM to designate AIs in his/her area.

### **Field Area Managers**

Field Area Managers (FAMs) have the responsibility and authority to coordinate all work within their assigned area. As such, the FAM is the day-to-day, on-site representative of his/her AIM. They report to the AIM responsible for their area and are responsible to:

- Execute the plan for their area, developing detailed lower level near term plans as needed.
- Interface with the Facility Integration Team (FIT) Leader, Site Manager, and IPT leaders as appropriate to resolve conflicts, interferences, and work priorities within their assigned areas.
- Define and control interfaces between areas with the other FAMs and resolve potential activity interferences.
- Concur on work to be performed within their assigned area prior to its commencement.
- Ensure that the assigned area activities are planned, hazards evaluated, and effort coordinated through the use of Job Hazards Analysis (JHA) and/or OSP procedures, SPAs, and other core work procedures.
- Be responsible for control of safety in their assigned area and monitor compliance to Safe Plan of Action (SPA) procedures.
- Ensure that facility procedures for safety (set forth in the NIF Project Site Safety Program [NPSSP] and subtier safety plans and procedures), QA, and work processes are followed.

### **Integrated Product Teams**

An Integrated Product Team (IPT) is a multidisciplinary, multiorganizational, interdependent team assembled to lead and integrate all activities necessary to deliver a commissioned and fully dispositioned system to the NIF operations organization. In this context, a fully dispositioned system is one that meets all the performance and operational requirements of the specified functionality of that system or has an approved plan to reach these requirements through the activities of the receiving organization (i.e., Commissioning & Operations). An IPT consists, at a minimum, of the IPT Leader (and designated alternate), all CAP Managers (and/or designees), and the systems engineering representative associated with the IPT's NWBS activities. Step representatives, project control representatives, assurance management representatives, contractors, and consultants may be included as required. It is the primary role of the IPT to facilitate communication among team members and effect timely decision making in the Project. The IPTs report to the Project Manager through their respective AIM and the Systems Engineering Manager.

- Each IPT and all IPT members shall work creatively and aggressively to move the Project forward within the constraints of the approved baseline project plan, the detailed sub-plan for their products and the Project Control Manual.
- Each IPT will diligently stay informed in overall project and IPT matters to keep their IPT on track.
- The IPT Leaders shall:
  - Be responsible for the integrity of the plans and contractual relationships among all parties in the IPT. This includes evaluating and coordinating milestones, CAPs, ICDs, and the NIF Planning System/Integrated Project Schedule (NPS/IPS) plans associated with their NWBS elements.
  - Through and with the support of Systems Engineering, collect and validate requirements (SSDRs and ICDs) for their NWBS elements and maintain an active risk list for their NWBS elements and the status of risk mitigation activities under way for those risks.
  - Serve as CCB5 for the IPT area to ensure that ECRs have been properly reviewed by the team and all consequences to the team have been considered and agreed upon before going to CCB4.
  - Actively participate in oversight of work activities in the facility to ensure that their IPT is on track.
  - Attempt to resolve budgetary and schedule issues within their IPT. IPTs are the preferred path for change requests (ECRs, BSCRs) and Nonconformance Reports (NCRs) through the authority of project-approved CCBs and MRBs.
  - Have the authority and responsibility to review and concur with all CAPs within their respective team before concurrence by their AIM.
  - Serve as an AI when so designated by the NIF Project Manager or the responsible AIM in accordance with the NIF Project implementation of ISM.
  - Responsible to concur on all applicable IWSs from the perspective of systems integration when not serving in an AI capacity for the subject IWS.

### **Facility Integration Team**

The purpose of the Facility Integration Team is to provide an overall coordination function for work on the NIF site between AIR, BIS, the AIMs, and the IPTs. The Facility is defined by the B581/681 complex, including the Laser and Target Area Building (LTAB), Clean Corridor, Optics Assembly Building (OAB), Central Plant, Diagnostic Building.

The FIT consists of the FIT Leader, the Site Manager, the Site Safety Manager, the AIMs, the Commissioning and Operations Managers, the FAMs, the Beampath Infrastructure System (BIS) APM, the Assembly, Installation and Refurbishment (AIR) APM, and the ES&H Assurance Manager. Additional NIF managers may be included as required. The FIT Leader reports to the Project Manager through the Systems Engineering Manager and is responsible to:

- Lead the FIT and maintain work coordination through the FAMs.
- Ensure that near- and long-term integrated planning of work in the facility is occurring.
- Be a voting member of CCB4. In this regard, the preferred action is for the FIT Leader to concur with all Engineering Change Requests (ECRs), Budget/Schedule Change Requests (BSCRs), or other proposed actions having potential facility impact prior to presentation to the CCB4.
- Concur on the content of the NPSSP. With the Site Manager and the ES&H Assurance Manager, review the document at least annually and recommend updates to the document as needed.
- With the ES&H Assurance Manager and the Site Manager, coordinate the development of core work procedures and standards for working on the NIF site

The FIT is responsible to:

- Arbitrate conflicts for concurrent space/time needs in the facility.
- Provide a centralized near and long term planning and integration function for all work occurring on the NIF site and ensure that no new hazards have been created by planned and ongoing work that have not been mitigated.
- Resolve interface issues between the facility and other NWBS elements.

- Assess and recommend resolution of issues associated with parallel occupancy in the facility for concurrent construction, commissioning and operations activities (e.g., hazard level determination, work shift separation, work “start” requirements).
- Develop and maintain an overall site logistics plan (staging, storage, access, etc.).
- Work with Laser Equipment Production/Procurement to ensure that contracts for work performed on the site have the appropriate language for coordination, labor harmony, and other site-specific requirements.

### **Site Manager**

The Site Manager is appointed by the Facility AD, based on recommendations by the FIT. The Site Manager reports to the NIF Project Manager and is responsible to:

- Serve as the primary Facility Point of Contact (FPOC). The Site Manager may appoint alternate FPOCs, assuring that they are trained and qualified for that responsibility.
- Control access requirements and access to the NIF site. This includes safety, security, and training requirements.
- Interface with the institution (e.g., Plant Engineering) as necessary to support the work activities on the site.
- Assure that the NIF facilities are operated in accordance with the NIF Programs Directorate Integrated Safety Management System Implementation Plan, *NIF-0054160*, and the NPSSP.
- Ensure that the Site Emergency Preparedness Plan and provisions are effective and current.
- Establish an Injury Management Plan.
- Verify that safety requirements are met for contractors/subcontractors, including all worker safety education and orientation requirements.
- Develop safe work recognition and disciplinary programs.
- Review the results of the audits for compliance, for recommendations made for correction and prevention of recurrence, and for follow-up measures taken to develop compliance.
- Ensure that the overall site environmental permits are carried out working with the ES&H Assurance Manager (e.g., Storm Water Pollution Prevention Plan for the NIF site).

### **Site Safety Manager**

The Site Safety Manager reports to the Site Manager and advises the Site Manager on coordination and implementation of the NPSSP and NIF Project-specific safety and health policies. This individual is the primary responsible party within facility management for assuring site compliance with the NPSSP. The Site Safety Manager is a member of the Facility Integration Team and is responsible to:

- Assist the Site Manager with the coordination of all concurrent construction and site work activities related to ES&H or having ES&H implications. This responsibility includes acting as an interface to assist in resolution of any conflicts related to ES&H issues among elements performing work at the NIF Project site.
- Make final recommendations on resolving issues of conflict (pertaining to ES&H) among elements performing work at the NIF Project site.
- Develop and assure safety training and orientation of all entrants to the NIF Project site, including sub-contractors,
- Assure compliance with all applicable safety and health procedures through site inspections, documenting such with recommendations to the Site Manager for immediate corrective action on “Imminent Danger” situations (IDLH).
- Support the NIF ES&H Assurance Manager and NIF Safety Assurance Coordinator with the performance of safety audits at the NIF Project site.
- Ensure preparation and submittal of required safety and health reports for record-keeping information.
- Implement safe work recognition and disciplinary programs.
- Assure adequate investigations and analysis on all accidents (non-injury and injury).
- Assure prompt and adequate medical treatment for employees working on the NIF Project site.

### Associate Project Managers—NIF Products

The Associate Project Managers are responsible for the scope, schedule, budget, and technical and safety performance for their assigned NWBS elements. Associate Project Managers report to the NIF Project Manager and are responsible to:

- Design, procure, install, and acceptance test (as appropriate) NIF Systems, Subsystems and Components (SSCs) that perform to their documented and approved requirements..
- Document and control through the change control process, the flow down requirements that form the basis for their assigned NWBS element.
- Work with the IPTs, AIMS, and Systems Engineering to support interface control and other engineering integration activities (e.g., Reliability, Availability and Maintainability; cleanliness, and Failure Modes and Effects analysis).
- Conduct NIF-related technology development and risk management activities necessary to achieve performance requirements. As appropriate, coordinate these activities with other organizations (e.g., Laser Science and Technology, Systems Engineering, Mission Support, etc.).
- In collaboration with Commissioning and Operations, IPTs, AIMS, Step Managers, and APMs, prepare and implement the acceptance and commissioning tests for their respective areas consistent with the appropriate requirements.
- Support the NIF Management Pre-start Review process.
- Develop, execute and report progress against integrated IPS/NPS plans for their NIF deliverables. This includes preparing, committing to, and managing Control Account Plans, and maintaining them through the Project change control processes.
- Ensure that all work adheres to NIF procedures, including design work, design reviews, procurement and procurement reviews, configuration management, etc.
- Work with the NIF QA organization to develop, implement, and maintain a NIF compliant, cost effective QA/QC Program. Ensure that appropriate work controls are in place for Quality Level 1 and 2 items.
- Ensure that all the NIF equipment, offline equipment and support facilities within their responsibility meets applicable ES&H and other regulatory requirements. Identify and implement institutional and NIF Project work controls, or if none exist for a specific situation, establish work controls to carry out their ISM responsibilities.
- Serve as AI (e.g., development and assembly work not covered by the NPSSP) when so designated by the NIF Project Manager. The BIS APM serves as AI for site laydown and staging areas and general facilities as delegated by the Project Manager.
- Serve as the primary RI at the NIF site, delegating the RI role to their subordinate managers as appropriate. When not directly acting as the RI, concur on IWSs covering work to be performed by their organization.
- Ensure the qualification and training of their managers and workers to perform their assigned responsibilities.

The NIF Product APMs and their associated scopes are:

- **Beampath Infrastructure System (BIS)**—responsible for the NIF Conventional Facilities, including their maintenance and operations: Laser and Target Area Building, Optics Assembly Building, central plant, and site upgrades; and the Beampath Infrastructure System consisting of the utility systems, support structures, vessels, and beam tubes (NWBS N.F, N.U, N.L.3.3, N.T.4 (less N.T.4.3), and N.T.5.2.2). The CF/BIS APM will also direct the Construction Manager (CM) and the Integration Management and Installation (IMI) Contractor as the Contracting Officer's Technical Representative.
- **Line Replaceable Units (LRUs)**—responsible for the Injection Laser System (ILS) (NWBS N.L.1.1), which includes the master oscillator room, preamplifier module, preamplifier beam transport, preamplifier structure, input sensor package, and the back reflection sensor; the laser amplifier system (NWBS N.L.1.3), which includes the pulsed power conditioning, amplifier, and amplifier cooling systems; the Beam Transport/Diagnostics system (NWBS N.L.1.2, N.L.2, N.L.3.1, and N.L.3.4) including the main laser optical system, multiplexed diagnostics, 1 $\omega$  optical transport, laser-to-target alignment, and laser system beam control and diagnostics; and the integrated optics module, final optics assembly, calorimeter, phase plates, ghost

elimination hardware, and associated control systems. The LRU APM is also responsible for the Target Chamber and Support Systems (N.T.5.2.3), comprising the first wall, environmental protection system, auxiliary systems, and safety systems.

- **Laser Materials and Optics Technology (LMOT)**—responsible for development, facilitization, and production of the NIF large-aperture optics. This includes procurement, process and materials trouble shooting, QC inspection, production tracking and shipping of: (1) laser amplifier glass, (2) lenses and windows, (3) mirrors and polarizers, and (4) KDP and DKDP crystal plates.
- **Integrated Computer Control Systems (ICCS)**—responsible for the hardware and software engineering, including independent verification, of the NIF integrated computer system (NWBS N.C, N.L.4, N.T.7, N.T.8.2, N.T.3, and control system elements within N.L.1.1, N.L.1.2, and N.L.1.3), consisting of supervisory, control system timing, safety interlocks and access controls, computers and network hardware, control room, target diagnostics controls, and classified systems.
- **Assembly, Installation, and Refurbishment (AIR)**—responsible for the assembly, installation, and refurbishment of NIF line replaceable units (LRUs) including large optics processing. These responsibilities include: management and operation of NIF assembly and refurbishment facilities (Optics Assembly Building, Optics Processing Development Laboratory, parts of B391, and the preamplifier module maintenance area), as well as development and implementation of production plans and strategies, staffing plans, training and qualification programs, and the AIR quality program. The AIR APM is responsible for ensuring that AIR facilities and operations are in accordance with all applicable ES&H and ISM requirements. The AIR APM is also responsible for the assembly and refurbishment equipment project element (N.A.2.0) and the transport and handling equipment project element (N.A.1.0).
- **Target Experimental Systems (TES)**—responsible for the Target Diagnostics (NWBS N.T.1, N.T.2, N.T.3, N.T.5.2.1, N.T.6, N.T.9, and N.T.8), which includes the positioners/manipulators, laser on-target diagnostics, classified and unclassified target diagnostics.

#### Associate Project Managers—NIF Project Steps

The NIF Project Steps are Project execution processes encompassing mission definition, requirements definition, research and development, engineering, production, and commissioning/operations. The NIF Step organizations responsible for providing the processes to execute these Steps are Mission Support, Controls Engineering, Engineering Services, Laser Equipment Production, and Commissioning & Operations. The Project Step APMs report to the NIF Project Manager and are responsible to:

- Provide infrastructure required to execute process responsibilities.
- Support the Line Organization, the IPTs and AIMs with all resources necessary to meet their obligations.
- Manage staff required to coordinate and implement all process responsibilities.
- Develop, review, and update NIF process standards to ensure adequate guidance for effective and efficient project execution.
- Interface with the APM organizational elements to assure that planning for Step activities are coordinated and integrated with other organizational elements.
- Implement and maintain a QA/QC Program that will, in a cost-effective manner, ensure that hardware and software deliverables will be deployed according to NIF standards and will meet essential functional and performance requirements.

The Project Step APMs and their associated responsibilities are:

- **Mission Support**—responsible for interfaces with the NIF user community to coordinate their requirements and NIF deployment plans. The Mission Support Step manager will represent the interests of the users to the NIF Project during planning (e.g., sequencing of commissioning in order to provide the best early capability with respect to the user needs), commissioning, and operation. This responsibility includes developing (with Shot Operations) the experimental plan that best meets the user community needs.
- **Controls Engineering**—responsible for the system architecture and promulgation of standards, policies, and procedures for implementing the NIF control systems. This Step provides oversight of control system software

engineering, including development and execution of software implementation plans, formal testing, and documentation. Responsibilities include ensuring that software configuration management is performed in accordance with the NIF Software Configuration Management Plan. The Controls Engineering Step Manager will ensure that software QA is performed in accordance with the NIF Ancillary Software Assurance Plan and, with the Assurances Manager, perform audits to ensure that processes are in place and necessary improvements are made.

- **Engineering Services**—responsible for defining the process, procedures, and deliverables for the Engineering Step of the NIF Project. This position is also responsible for associated functions that aid or are required for the completion of the engineering Step. These associated functions include managing the designer staff, component engineering, CAD databases, and process and procedures for configuration management.
- **Laser Equipment Production**—responsible for the procurement and production of the NIF equipment. This includes the development and implementation of production strategies, preparation and management of production contracts, and the operation of NIF receiving and storage functions and the associated production control functions. The LEP Manager serves as AI for facilities under his/her control.
- **Commissioning & Operations**—responsible for commissioning and operation of the NIF. The Commissioning responsibilities include preparation of the commissioning plan and providing guidelines for test procedure content and the levels of testing for equipment and subsystems at the various phases of commissioning and management of the commissioning of the laser system and target bay systems. The Operations responsibilities include: management of the Operations personnel who will participate in the commissioning activities; the planning and conduct of the operations and maintenance of the Laser and Target Area Building and some other NIF support facilities; implementation of all safety requirements per the LLNL ISM Plan; development and implementation of training and operator qualification programs; control of security and access to NIF facilities when operational.

### Project Support Staff

The **Project Administrator** provides administrative functions and assistance in support of the Project and provides full supervision to the Project administrative staff. He/she coordinates assignments for ongoing tasks of mutual benefit and assists in the dissemination of information on Project activities. The Project Administrator reports to the Project Manager and will:

- Manage the Project's administrative staff and coordinate administrative functions in the Project Office.
- Manage Project files and documents; working with the Quality Assurance Manager, maintain the Project QA File (master file).
- Coordinate the Project's appraisal, ranking, and salary management process.
- Manage and coordinate the personnel recruiting functions.
- Coordinate and facilitate Project administrative functions (e.g., training, security, document control, correspondence, classified document accountability, affirmative action, supplemental labor, workforce and space planning) and ensure compliance with LLNL policies and procedures and formulate and implement administrative policies.

The **ES&H Assurance Manager** is responsible for the environmental, safety, health, and security plans and evaluations of the NIF Project. He/she reports directly to the Project Manager. The Manager will:

- Prepare and ensure implementation of the ES&H Management Plan and the NPSSP. Develop the NIF ALARA (as low as reasonably achievable) Program, Security Plan, ES&H Risk Management Plan, and Operational Safety Requirements (OSRs) with the Associate Project Manager for Commissioning and Operation.
- Be responsible for NIF NEPA policies, documentation, permits and actions.
- Perform safety analyses of NIF construction and operation (Preliminary Hazards Analysis, Preliminary Safety Analysis Report, and Final Safety Analysis Report with OSRs).
- Work with the FIT Leader and Site Manager to coordinate the development of core work procedures and standards for working on the NIF site (e.g., JHAs, access training, work authorization).
- With the Operations Manager, co-chair the Safety and Performance Review Board.
- Provide monitoring to assure that all applicable federal, state, local and LLNL ES&H regulations are followed.

- Oversee the NIF Occurrence and Incident Reporting Program for the NIF Project site.
- Interface with the DOE OAK ES&H Manager on all assurance issues.

The **Quality Assurance Manager** is responsible for planning, implementing, and auditing QA/QC-related activities on the Project. The QA Manager reports to the Project Manager and will:

- Prepare and lead the implementation of the NIF Project QA Program Plan and ensure that it meets the requirements of applicable DOE Orders and the Code of Federal Regulations.
- With the Systems Engineering Organization, develop and document quality-level criteria to implement graded quality assurance.
- Prepare the implementation procedures in the Project Control Manual.
- Establish a Problem Identification and Correction System and ensure that it is implemented.
- With the Commissioning and Operations Managers, develop a project quality training and orientation program for Project personnel and provide the training system.
- Maintain the QA File.
- Verify the quality of Project and contractor work by audit and independent Management Review.
- Provide management with Project quality achievement status and recommend means of improving quality performance.



## Acronyms

|         |  |
|---------|--|
| AD      | Associate Director                             |
| AI      | Authorizing Individual                         |
| AIM     | Area Integration Manager                       |
| AIR     | Assembly, Installation & Refurbishment         |
| AIT     | Area Integration Team                          |
| ALARA   | As Low As Reasonably Achievable                |
| APM     | Associate Project Manager                      |
| BCCB    | Baseline Change Control Board (also CCB)       |
| BIS     | Beam Infrastructure System                     |
| BSCR    | Budget/Schedule Change Request                 |
| CAP     | Control Account Plan                           |
| CCB     | Change Control Board (also BCCB)               |
| DOE     | Department of Energy                           |
| DOE-HQ  | Department of Energy Headquarters              |
| DOE-OAK | Department of Energy Oakland Operations Office |
| ECR     | Engineering Change Request                     |
| ES&H    | Environment, Safety & Health                   |
| FAM     | Field Area Manager                             |
| FPOC    | Facility Point of Contact                      |
| FSAR    | Final Safety Analysis Report                   |
| ICCS    | Integrated Computer Control System             |
| ICD     | Interface Control Document                     |
| IPS     | Integrated Project Schedule                    |
| IPT     | Integrated Product Team                        |
| ISM     | Integrated Safety Management                   |
| IWS     | Integration Work Sheet                         |
| JHA     | Job Hazard Analysis                            |
| LMOT    | Laser Materials and Optics Technology          |
| LRU     | Line Replaceable Unit                          |
| MPR     | Management Prestart Review                     |
| MRB     | Material Review Board                          |
| NCR     | Non Conformance Report                         |
| NEPA    | National Environmental Policy Act              |
| NIF     | National Ignition Facility                     |
| NNSA    | National Nuclear Security Administration       |
| NPS     | NIF Planning System                            |
| NPSSP   | NIF Project Site Safety Plan                   |
| NWBS    | NIF Work Breakdown Structure                   |
| OSP     | Operational Safety Procedure                   |
| OSR     | Operational Safety Requirements                |
| PC/FR   | Primary Criteria/Functional Requirements       |
| QA      | Quality Assurance                              |
| QC      | Quality Control                                |
| RI      | Responsible Individual                         |
| S&PRB   | Safety and Performance Review Board            |
| SDR     | System Design Requirements                     |
| SPA     | Safe Plan of Action                            |
| SSC     | Systems, Subsystems & Components               |
| SSDR    | SubSystem Design Requirements                  |
| TES     | Target Experimental Systems                    |